Just In Time Publication

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Considerations when Programming for School Construction

With Education For All as a goal, the lack of adequate and appropriate facilities is becoming apparent. School construction projects are being funded at higher levels; with this rise in funding there is a need to know more about the issues surrounding school construction. This publication outlines field experiences in USAID school construction projects in an effort to inform decision-making.

One rule-of-thumb is that if the cost to renovate a school is 60-65% or less than the cost to build from scratch, it would be better to renovate (Department of State, 2003).

Build New or Renovate

In the planning phase of most school construction projects, the question of whether to renovate or build from scratch arises. One rule-of-thumb is that if the cost to renovate a school is 60-65% or less than the cost to build from scratch, it would be better to renovate (Department of State, 2003). *Geographic and population mapping* is a useful activity to aid in making that decision. Mapping activities may indicate that existing schools are already appropriately located, which may mean that renovation is the more resource- and cost-effective option. At times, acquiring new land is difficult, and therefore renovating existing schools is the only option. For example, land is at a premium in Egypt and so special permission must be obtained to dedicate land for school construction. The Ministry of Agriculture is especially keen on ensuring that agricultural land is not taken out of production for school construction. It is important to know these types of limitations when planning the construction of a school. An additional benefit of geographic and population mapping is that it can aid in deciding on a location that will be accessible for the majority of the population.

Construction, School Design, and Maintenance

The design and architecture of the school is always an essential consideration. Features that deserve attention in the planning phase include play spaces, girl-appropriate facilities, and adequate lighting. Local ideas of *privacy* should be explored when planning facilities. Privacy is especially important for menstruating girls and should be addressed when deciding on how and where to build latrines. It is also important to consider building a wall or barrier around a school to provide a safe, private, and quiet environment that is conducive to learning. Builders should know whether there is electricity available in the location that the school is being built, and if not, creative ways of enhancing lighting in the school should be explored (i.e. sunroofs).

When planning *production schedules*, it is important to take into consideration weather patterns and local geographic conditions. For example, a project in Sudan was having concrete blocks shipped from Kenya during the Sudanese monsoon season, which delayed the schedule and added storage costs. Being familiar with the terrain of the construction site is also crucial. If the land surrounding the site is rocky and mountainous, then adhering to blueprints that would call for the use of a crane would be inappropriate. Furthermore, for liability reasons, it is also important to ensure the safety of all workers and to hire engineers to oversee the process. In projects that are renovating a school or adding a new wing, it is advisable to renovate and upgrade the existing portions so that there is equity throughout the facility.

Planning for *access* for students, teachers, and community members with disabilities should also be a part of the design phase. Certain modifications to the architecture or design of a school can allow for a disabled-friendly structure: ramps, larger desks, wider doorways, and larger latrines that can accommodate wheelchairs or people that require more room to maneuver. Partnerships with organizations that cater specifically to the physically disabled can pave the way for creating an environment and structure that allows access to the disabled. It is important to understand the standards that USAID has set regarding accessibility for the disabled when planning and budgeting for a construction project. These standards are discussed in further detail in the "Standards" section below.

Classrooms should be conducive to a *variety of instructional methodologies.* Furnishings should be appropriate for the teaching methods. Purchasing easy-to-move furniture can enable the teacher to change the classroom to meet daily teaching and learning needs. Replacing the traditional rows of attached chairs and desks with furniture that can easily be arranged into various configurations can encourage student-centered learning methods in classrooms. Furniture that can be locally maintained can add to the life of the furnishings. If there are furnishings that are made from materials that are not available in the community, then it will be that much more burdensome - logistically and financially - for the community to get the furnishings repaired, increasing the likelihood that the community will not repair the item at all.

Maintaining schools and classrooms is crucial for the enhanced life of the structure. It should be decided from the outset of the project which entity is responsible for the maintenance of the school – is it the community or the local government or the central government? A maintenance program should be built into construction plans. An added benefit of engaging the community and parent groups in the construction of the school is that it increases a feeling of community ownership, which may provide an incentive for the community to be involved in the maintenance of the building. The school administration or parent-teacher organization can be trained and supported in more actively participating in ongoing maintenance. Hanging posters in key areas to instruct students and teachers on expectations of daily maintenance, making cleaning materials easy to find and accessible, and promoting student ownership of classrooms can all aid in encouraging maintenance by students, teachers, and the administration.

There are certain features that can be integrated into the school design and architecture that allow for easier and better maintenance. Adding ceramic tiles to classroom walls make it easier to clean and easier to hang student work. Strips of wood nailed horizontally across the walls at the appropriate height can be used for hanging up work, while also reducing the damage to the walls that occurs when removing and replacing materials on the walls.

Building Codes and Standards

USAID and the U.S. government set certain standards for construction projects. For example, the "USAID Disability Policy Paper" sets the standards and guidelines that adhere to the "universal design" principle when building or renovating buildings with USAID funds. "Universal design" means building structures that are accessible to everyone, including those with disabilities (as opposed to "accessible design," which is only accessible to people with disabilities and therefore may lead to separate facilities for the disabled and promote exclusion). Builders are to use the host-country's standards as long as they provide for "substantially equivalent accessibility and usability" as the guidelines standards set by the Americans with Disabilities Act (ADA) and the Architectural Barriers Act (ABA) Accessibility Guidelines. If the host-country does not have standards that are aligned with these acts, then structures must adhere to those standards set forth in the ADA and ABA Accessibility Guidelines. These standards are often extremely cost-limiting and can impact production

schedules, maintenance costs, and the ability to use local labor. Additionally, environmental impact studies are often necessary when undertaking a construction project. These costs should be taken into account when planning how to spend resources.

While necessary for safety and durability, standards can often be prohibitively expensive and not appropriate for the environment. They can restrict the number of schools that can be built on a finite budget. In some countries, school building standards are rigorously enforced and it can be difficult to incorporate changes, improvements, and cost-reduction measures into the design of a new school. Setting standards too high for the resources available can often hamper rebuilding the education system in countries emerging from war or civil unrest.

If more than one NGO/donor is involved in a school construction project, it is important that the standards for each are aligned. In one case, the project agreed to lay the foundation and the Army Corps of Engineers built upon the foundation. Because the standards were not the same, the Army Corps of Engineers could not do the work they intended. Additionally, it is crucial to incorporate a quality assurance plan at the beginning of the project to ensure that all standards and schedules are aligned.

Political Considerations

Construction is seductively easy. It is visible and can become political or the main focus of a project because it builds local economy and can be easily monitored. But, it is important to focus on the end result of facilitating better education. Understanding the political interest and knowing who can stand to gain from construction projects is also important. For example, ministries of education have asked for projects to do construction to their own buildings even though it wasn't a part of the original plan. This can use resources that would otherwise provide a better education for the students. Given its attractiveness, it is possible for missions to use construction as a bargaining chip (i.e. building a school in return for training X amount of teachers or donating land).

It is not only important to understand the in-country political climate, but also the agenda of the United States government in the country that the work is being done. This is especially true in fragile states where it would be helpful to U.S. diplomatic efforts to build something tangible to show to the local population the interests of the U.S. citizens. Additionally, construction projects serve to show U.S. taxpayers how their money is being spent. This kind of pressure often sets excessively high expectations for delivery schedules and the scale of the construction project.

Partnerships

As with most projects, fostering partnerships is a vital component of educational building activities and can aid in the success and sustainability of a project. They include partnerships with the community, school building authorities, school administration, and parent-teacher organizations. Partnership roles between the government and the community should be clearly defined and appropriate for the context. Ideally, a partnership would exist in which the government provides standards and materials and the community provides labor and local materials.

If a community feels ownership of a school, it will better maintain the school, use the school for wider community purposes, and more actively participate in parent-teacher and school board organizations. Incorporating a multi-purpose room that can be used by the wider community is a good way to welcome and engage the community. In addition to involving the community in needs assessment and land procurement for school construction,

community leaders can also be involved in identifying local laborers for the construction company once a contract has been signed. Additionally, a community education committee can be encouraged to take part by inviting high officials to a corner stone laying celebration; deciding where the gate should be; choosing a color for the fence around the school; naming the school; actively participating in electing the first parent-teacher organization or the first school board; and organizing a school opening celebration. Establishing effective partnerships can also be a creative way to increase the resource base. In some cases, it may be possible to encourage the establishment school improvement endowment funds through an active parent-teacher or school board organization.

It is worth the extra investment in time to involve the school building authorities throughout the design process. They will be informed and aware of the changes well before their approval is requested. This can aid in getting their approval when it is needed.

Security and maintenance costs are often overlooked in the budget preparation

Resources and Funding

Because resources and funding are usually scarce, it is extremely important to carefully and properly plan budgets that build in the appropriate costs. Security and maintenance costs are often overlooked in the budget preparation. In the United States, one-third of the costs from endowments at universities are to be allocated specifically for ongoing maintenance. Annual maintenance costs can be up to one-fifth of construction costs. When local resources are available, they should be used in school construction, including labor and physical resources. Using locally available resources is usually more cost-efficient - saving money on shipping and importation costs - and can also stimulate economic activity in the region that the project is taking place, thereby increasing local ownership of the school. It is also helpful because items can be repaired locally after the project ends. However, while training local laborers may build capacity, it can be quite expensive and extend production schedules substantially. When hiring local contractors, it is important to keep in mind their limitations.

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USAID Projects with School Construction Components

Following is a list of some projects active in 2005 that are implementing a school construction or renovation component. These projects may have valuable insight into how to develop and plan for a school construction project. The mission contacts for these projects are included.

Annual maintenance costs can be up to one-fifth of construction costs.

AIDE: Djibouti. USAID CTO – Maura Barry (mabarry@usaid.gov).

- Rehabilitation of Guelleh Batal Primary School and Ambouli Middle School.
- Repair of a roof destroyed by wind on a block of three classrooms at CES Tadjourah and rehabilitation of sanitary facilities at CES Obock.
- Conversion of Gabode I Primary School to a middle school, including the construction of laboratories, separate sanitary blocks, renovation of classrooms and director's quarters, new water and septic systems in the sanitary block, rehabilitation of the boundary wall, and conversion of classrooms into laboratories.
- Rehabilitation of prospective Teacher Resource Center (TRC) in Djibouti Ville and construction of TRCs in four other districts
- Construction of foundations for dormitories in Tadjourah and Dikhil.
- Assistance in completing renovations at the Ministry of Education's headquarters building.

CLASS: Senegal. USAID CTO – Pape Sow (psow@usaid.gov)

- Construction of at least 18 middle schools in the three project target regions: Fatick, Kolda, Tambacounda. New buildings include four classrooms, two separate bathroom facilities, an administration and teachers building, a library, and a multipurpose room.
- Renovation of at least 12 middle schools, including two classrooms, bathroom facilities, and an administration/teacher building.
- At least 30 communities participate in construction, renovation, maintenance, and improvement activities of their local middle schools.

ERP: Egypt. USAID CTO – Hala El Serafy (helserafy@usaid.gov)

- Construct 330 new classrooms - New classrooms are being constructed in communities where there is scarcity of facilities or overcrowding of schools. All new classrooms are being planned and located in accordance with community needs and desires.

YALA: Yemen. USAID CTO – Susan Ayari (AyariSH@state.gov)

- Rehabilitation of 77 primary schools in three rural governorates.
- Construction of eight 100-person capacity multipurpose rooms for periodic major events, such as teacher training, adult literacy classes, and community meetings. The rest of the time, they will be divided by walls on wheels into three spaces (administrative office, teachers' lounge, and library).
- Mobile repair team along with community volunteers to refurbish 1200 (3 student) desks at 77 community schools in three governorates.

Bibliography and Additional Resources

The *American Overseas Schools Facilities Development Handbook - Project Hamlet To Build or Not to Build*, 2003, Department of State. The majority of this handbook deals with building American Overseas Schools, there are some points that are valid to building schools in developing countries. In particular, there are sections dealing with facilities studies, the issue of renovation versus new construction, demographic considerations, security concerns, budgeting, and funding. The document can be found at http://www.ecis.org/Downloads/FacilitiesDevHandbook.pdf. The appendices, found at http://www.ecis.org/consult/FacDevHandbook/Readme.pdf, are also helpful because they provide various checklists and resource lists.

The *National Clearinghouse for Educational Facilities (NCEF)* website has a resource list at http://www.edfacilities.org/rl/. There are subject-specific compilations of articles and documents that can aid in the various phases of school construction.

The *Honduras School Facilities Design Guidelines – Abbreviated* report is a useful overview of how one organization (Schools for the Children of the World) approached designing new schools in Honduras. The guidelines address site selection, classroom size, support space, space requirements, building layout, vehicular and pedestrian traffic issues, and building design and construction considerations. The report is available at http://www.schoolsforchildren.org/pdf/abbrv_guidelines_english.pdf.

The *Honduras School Facility Master Plan* is a more in-depth report dealing with the construction of schools in Honduras by Schools for the Children of the World. This report is useful because it not only provides the process that was undertaken in a substantial renovation and new construction project, but also provides data and explains how the data was used to estimate costs. The report can be found at http://www.schoolsforchildren.org/pdf/national_report_english.pdf.

Considerations in School Construction versus the Phases of Construction

Considerations \ Phases	New or Renovate	Design/Planning	Construction	Maintenance
Standards/Codes		Standards should be aligned when more than one NGO/donor is involved in school construction. ↔ Keep in mind USAID's standards for school construction.	Standards can be prohibitive if they are too high for the scope of the project. ↔ Disability access is important.	
Design/Construction	Geographic and population mapping can aid in deciding where to build a new school. ↔ Mapping may let planners know that existing schools are appropriately located.	In projects that are renovating a school or adding a new wing, equity between the old and new should be considered.		
Resources/Funding	If the cost to renovate a school is 60-65% or less than the cost to build from scratch, it would be better to renovate (Department of State, 2003).	It is possible to use school construction projects as a bargaining chip in return for teacher training or donated land. ↔ Builders should know the availability of local resources (i.e. electricity). ↔ A maintenance plan should be built into construction plans and budget. ↔ Security and maintenance costs are often overlooked in budget preparation.	Local resources should be used when available. ↔ Community leaders can be involved in identifying local laborers for the construction company.	It can be possible to establish school improvement endowment funds through an active parent-teacher or school board organization. ↔ Annual maintenance costs can be up to one-fifth of the construction budget.

Phases / Considerations	New or Renovate	Design/Planning	Construction	Maintenance
Partnerships		Involve the school building authorities throughout the design process in order to ease the approval process. Partnerships with organizations that cater to the physically disabled can help enabling access. Incorporating a multi-purpose room can welcome and engage the community.	Ideally, a partnership would exist in which the government provides standards and materials and the community provides labor and local materials.	Engaging the community and parent groups in the construction of the school may encourage them to be involved in the maintenance of the building. School administration or parent-teacher organizations can be trained and supported in participating in maintenance.
Politics	Who stands to gain politically from school construction? It is important to always keep the end-goal of education in mind. Knowing land limitations is important.	It is possible to use school construction projects as a bargaining chip in return for teacher training or donated land. Involve the school building authorities throughout the design process in order to ease the approval process.		